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property tags
 NEWS  3  AUG 06   FSTA enhanced with new thesaurus edition
 NEWS  4  AUG 13   CA/CAplus enhanced with additional kind codes for
granted
                   patents
 NEWS  5  AUG 20   CA/CAplus enhanced with CAS indexing in pre-1907
records
 NEWS  6  AUG 27   Full-text patent databases enhanced with predefined
                   patent family display formats from INPADOCDB
 NEWS  7  AUG 27   USPATOLD now available on STN
 NEWS  8  AUG 28   CAS REGISTRY enhanced with additional experimental
                   spectral property data
 NEWS  9  SEP 07   STN AnaVist, Version 2.0, now available with Derwent
                   World Patents Index
 NEWS 10  SEP 13   FORIS renamed to SOFIS
 NEWS 11  SEP 13   INPADOCDB enhanced with monthly SDI frequency
 NEWS 12  SEP 17   CA/CAplus enhanced with printed CA page images from
                   1967-1998
 NEWS 13  SEP 17   CAplus coverage extended to include traditional
medicine
                   patents
 NEWS 14  SEP 24   EMBASE, EMBAL, and LEMBASE reloaded with
enhancements
 NEWS 15  OCT 02   CA/CAplus enhanced with pre-1907 records from
Chemisches
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 NEWS 16  OCT 19   BEILSTEIN updated with new compounds
 NEWS 17  NOV 15   Derwent Indian patent publication number format
enhanced
 NEWS 18  NOV 19   WPIX enhanced with XML display format
 NEWS 19  NOV 30   ICSD reloaded with enhancements
 NEWS 20  DEC 04   LINPADOCDB now available on STN
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 NEWS 21  DEC 14  BEILSTEIN pricing structure to change
 NEWS 22  DEC 17  USPATOLD added to additional database clusters
 NEWS 23  DEC 17  IMSDRUGCONF removed from database clusters and STN
 NEWS 24  DEC 17  DGENE now includes more than 10 million sequences
 NEWS 25  DEC 17  TOXCENTER enhanced with 2008 MeSH vocabulary in
                  MEDLINE segment
 NEWS 26  DEC 17  MEDLINE and LMEDLINE updated with 2008 MeSH
vocabulary
 NEWS 27  DEC 17  CA/CAplus enhanced with new custom IPC display
formats
 NEWS 28  DEC 17  STN Viewer enhanced with full-text patent content
                  from USPATOLD
 NEWS 29  JAN 02  STN pricing information for 2008 now available
 NEWS 30  JAN 16  CAS patent coverage enhanced to include exemplified
                  prophetic substances

 NEWS EXPRESS  19 SEPTEMBER 2007:  CURRENT WINDOWS VERSION IS V8.2,
               CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
               AND CURRENT DISCOVER FILE IS DATED 19 SEPTEMBER 2007.

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=> s (1,4 or 1, 4) (2A) ((acetylgalactosaminyl transferase) or
acetylgalactosaminyltransferase)
L1          446 (1,4 OR 1, 4) (2A) ((ACETYLGALACTOSAMINYL TRANSFERASE)
OR ACETYL
                GALACTOSAMINYLTRANSFERASE)

=> s campylobacter
L2        38104 CAMPYLOBACTER

=> s l1 (10A) l2
L3            9 L1 (10A) L2

=> s l1 p l2
MISSING OPERATOR L1 P L2
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> s l1 (p) l2
L4           20 L1 (P) L2

=> s l1 (l) l2
L5           20 L1 (L) L2

=> s l3 or l4 or l5
L6           20 L3 OR L4 OR L5

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ENTER L# LIST OR (END):l6
DUPLICATE PREFERENCE IS 'MEDLINE, EMBASE, BIOSIS, CAPLUS'
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PROCESSING COMPLETED FOR L6
L7           10 DUPLICATE REMOVE L6 (10 DUPLICATES REMOVED)

=> d l7 1-10 bib ab

L7   ANSWER 1 OF 10  CAPLUS  COPYRIGHT 2008 ACS on STN
AN   2007:289252  CAPLUS
DN   146:496524
TI   Structural characterization of Campylobacter jejuni
lipooligosaccharide
     outer cores associated with Guillain-Barre and Miller Fisher
syndromes
AU   Godschalk, Peggy C. R.; Kuijf, Mark L.; Li, Jianjun; St.
Michael, Frank;
```

Ang, C. Wim; Jacobs, Bart C.; Karwaski, Marie-France; Brochu, Denis;
Moterassed, Ali; Endtz, Hubert P.; van Belkum, Alex; Gilbert, Michel
CS Department of Medical Microbiology and Infectious Diseases, University
Medical Center, Rotterdam, 3015 GD, Neth.
SO Infection and Immunity (2007), 75(3), 1245-1254
CODEN: INFIBR; ISSN: 0019-9567
PB American Society for Microbiology
DT Journal
LA English
AB Mol. mimicry between lipooligosaccharides (LOS) of Campylobacter jejuni
and gangliosides in peripheral nerves plays a crucial role in the pathogenesis of C. jejuni-related Guillain-Barre syndrome (GBS). We have
analyzed the LOS outer core structures of 26 C. jejuni strains associated
with GBS and its variant, Miller Fisher syndrome (MFS), by capillary
electrophoresis coupled with electrospray ionization mass spectrometry.
Sixteen out of 22 (73%) GBS-associated and all 4 (100%) MFS-associated strains
expressed LOS with ganglioside mimics. GM1a was the most prevalent
ganglioside mimic in GBS-associated strains (10/22, 45%), and in eight of
these strains, GM1a was found in combination with GD1a mimics. All seven
strains isolated from patients with ophthalmoplegia (GBS or MFS) expressed
disialylated (GD3 or GD1c) mimics. Three out of 22 GBS-associated strains
(14%) did not express sialylated ganglioside mimics because their LOS
locus lacked the genes necessary for sialylation. Three other strains
(14%) did not express ganglioside mimics because of frameshift mutations
in either the cstII sialyltransferase gene or the cgtB
galactosyltransferase gene. It is not possible to determine if these mutations
were already present during C. jejuni infection. This is the first report
in which mass spectrometry combined with DNA sequence data were used to
infer the LOS outer core structures of a large number of neuropathy-associated
C. jejuni strains. We conclude that mol. mimicry between gangliosides and

C. jejuni LOS is the presumable pathogenic mechanism in most cases of C. jejuni-related GBS. However, our findings suggest that in some cases, other mechanisms may play a role. Further examination of the disease etiol. in these patients is mandatory.

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2005:497944 CAPLUS
DN 144:101691
TI Genomic diversity in Campylobacter jejuni: identification of C. jejuni 81-176-specific genes
AU Poly, Frederic; Threadgill, Deborah; Stintzi, Alain
CS Department of Veterinary Pathobiology, College of Veterinary Medicine, Oklahoma State University, Stillwater, OK, 74078, USA
SO Journal of Clinical Microbiology (2005), 43(5), 2330-2338
CODEN: JCMIDW; ISSN: 0095-1137
PB American Society for Microbiology
DT Journal
LA English
AB Since the publication of the complete genomic sequence of Campylobacter jejuni NCTC 11168 in Feb. 2000, evidence has been compiling that suggests C. jejuni strains exhibit high genomic diversity. In order to investigate this diversity, the unique genomic DNA sequences from a nonsequenced Campylobacter strain, C. jejuni 81-176, were identified by comparison with C. jejuni NCTC 11168 by using a shotgun DNA microarray approach. Up to 63 kb of new chromosomal DNA sequences unique to this pathogen were obtained. Eighty-six open reading frames were identified by the presence of uninterrupted coding regions encoding a min. of 40 amino acids. In addition, this study shows that the whole-plasmid shotgun microarray approach is effective and provides a comprehensive coverage of DNA regions that differ between two closely related genomes. The two plasmids harbored by this Campylobacter strain, pTet and pVir, were also sequenced, with coverages of 2.5- and 2.9-fold, resp., representing 72 and 92% of their complete

nucleotide sequences. The unique chromosomal genes encode proteins
involved in capsule and lipooligosaccharide biosynthesis, restriction and
modification systems, and respiratory metabolism Several of these unique
genes are likely associated with C. jejuni 81-176 fitness and virulence.
Interestingly, the comparison of C. jejuni 81-176 unique genes with those
of C. jejuni ATCC 43431 revealed a single gene which encodes a probable
TraG-like protein. The product of this gene might be associated with the
mechanism of C. jejuni invasion into epithelial cells. In conclusion,
this study extends the repertoire of C. jejuni genes and thus will permit
the construction of a composite and more comprehensive microarray of C.
jejuni.
RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 10 MEDLINE on STN DUPLICATE 1
AN 2005392412 MEDLINE
DN PubMed ID: 16005859
TI Chemoenzymatic synthesis of 2-azidoethyl-ganglio-oligosaccharides GD3,
GT3, GM2, GD2, GT2, GM1, and GD1a.
AU Blixt Ola; Vasiliu Daniela; Allin Kirk; Jacobsen Nathan; Warnock Dawn;
Razi Nahid; Paulson James C; Bernatchez Stephane; Gilbert Michel;
Wakarchuk Warren
CS Carbohydrate Synthesis and Protein Expression Core D, Consortium for
Functional Glycomics, The Scripps Research Institute, Department of
Molecular Biology, CB-248A, 92037 La Jolla, USA..
olablixt@scripps.edu
SO Carbohydrate research, (2005 Sep 5) Vol. 340, No. 12, pp. 1963-72.
Journal code: 0043535. ISSN: 0008-6215.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
EM 200510
ED Entered STN: 31 Jul 2005
Last Updated on STN: 19 Oct 2005

Entered Medline: 18 Oct 2005

AB We have synthesized several ganglio-oligosaccharide structures using glycosyltransferases from Campylobacter jejuni. The enzymes, alpha-(2-->3/8)-sialyltransferase (Cst-II), beta-(1-->4)-N-acetylgalactosaminyltransferase (CgtA), and beta-(1-->3)-galactosyltransferase (CgtB), were produced in large-scale fermentation from Escherichia coli and further characterized based on their acceptor specificities. 2-Azidoethyl-glycosides corresponding to the oligosaccharides of GD3 (alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)-beta-D-Galp-(1-->4)-beta-D-Glcp-), GT3 (alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)-beta-D-Galp-(1-->4)-beta-D-Glcp-), GM2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), GD2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), GT2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), and GM1 (beta-D-Galp-(1-->3)-beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-) were synthesized in high yields (gram-scale). In addition, a mammalian alpha-(2-->3)-sialyltransferase (ST3Gal I) was used to sialylate GM1 and generate GD1a (alpha-D-Neup5Ac-(2-->3)-beta-D-Galp-(1-->3)-beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-) oligosaccharide. We also cloned and expressed a rat UDP-N-acetylglucosamine-4'epimerase (GalNAcE) in E. coli AD202 cells for cost saving in situ conversion of less expensive UDP-GlcNAc to UDP-GalNAc.

L7 ANSWER 4 OF 10 MEDLINE on STN DUPLICATE 2

AN 2005087616 MEDLINE

DN PubMed ID: 15716397

TI Overexpression of GD1a ganglioside sensitizes motor nerve terminals to anti-GD1a antibody-mediated injury in a model of acute motor axonal neuropathy.

AU Goodfellow John A; Bowes Tyrone; Sheikh Kazim; Odaka Masaaki; Halstead Susan K; Humphreys Peter D; Wagner Eric R; Yuki Nobuhiro; Furukawa Koichi; Furukawa Keiko; Plomp Jaap J; Willison Hugh J

CS Division of Clinical Neurosciences, Institute of Neurological Sciences, Southern General Hospital, Glasgow G51 4TF, United Kingdom.

NC NS42888 (NINDS)

SO The Journal of neuroscience : the official journal of the Society for Neuroscience, (2005 Feb 16) Vol. 25, No. 7, pp. 1620-8.
Journal code: 8102140. E-ISSN: 1529-2401.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 200510

ED Entered STN: 19 Feb 2005
Last Updated on STN: 14 Oct 2005
Entered Medline: 13 Oct 2005

AB Anti-GD1a ganglioside antibodies (Abs) are the serological hallmark of the acute motor axonal form of the post-infectious paralysis, Guillain-Barre syndrome. Development of a disease model in mice has been impeded by the weak immunogenicity of gangliosides and the apparent resistance of GD1a-containing neural membranes to anti-GD1a antibody-mediated injury.

Here we used mice with altered ganglioside biosynthesis to generate such a model at motor nerve terminals. First, we bypassed immunological tolerance by immunizing GD1a-deficient, beta-1,4-N-acetylgalactosaminyl transferase knock-out mice with GD1a ganglioside-mimicking antigens from Campylobacter jejuni and generated high-titer anti-GD1a antisera and complement fixing monoclonal Abs (mAbs). Next, we exposed ex vivo nerve-muscle preparations from GD1a-overexpressing, GD3 synthase knock-out mice to the anti-GD1a mAbs in the presence of a source of complement and investigated

morphological and electrophysiological damage. Dense antibody and complement deposits were observed only over presynaptic motor axons, accompanied by severe ultrastructural damage and electrophysiological blockade of motor nerve terminal function. Perisynaptic Schwann cells and postsynaptic membranes were unaffected. In contrast, normal mice were not only unresponsive to immunization with GD1a but also resistant to neural injury during anti-GD1a Ab exposure, demonstrating the central role of membrane antigen density in modulating both immune tolerance to GD1a and axonal susceptibility to anti-GD1a Abmediated injury. Identical paralyzing effects were observed when testing mouse and human anti-GD1a-positive sera. These data indicate that anti-GD1a Abs arise via molecular mimicry and are likely to be clinically relevant in injuring peripheral nerve axonal membranes containing sufficiently high levels of GD1a.

L7 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2002:276514 CAPLUS
DN 136:320378
TI Campylobacter glycosyltransferase genes and enzymes for biosynthesis of gangliosides and ganglioside mimics
IN Gilbert, Michel; Wakarchuk, Warren W.
PA National Research Council of Canada, Can.
SO U.S. Pat. Appl. Publ., 84 pp., Cont.-in-part of U.S. Ser. No. 495,406.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002042369	A1	20020411	US 2001-816028	20010321
US 6699705	B2	20040302		
US 6503744	B1	20030107	US 2000-495406	20000131
EP 1652927	A2	20060503	EP 2005-25316	20000201

EP 1652927 A3 20060719
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL
AT 329036 T 20060615 AT 2000-901455 20000201
PT 1147200 T 20061031 PT 2000-901455 20000201
ES 2269098 T3 20070401 ES 2000-901455 20000201
CA 2441570 A1 20020926 CA 2002-2441570 20020222
WO 2002074942 A2 20020926 WO 2002-CA229 20020222
WO 2002074942 A3 20030313
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB,
GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG
AU 2002237122 A1 20021003 AU 2002-237122 20020222
AU 2002237122 B2 20070322
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2004524033 T 20040812 JP 2002-574334 20020222
US 2003148459 A1 20030807 US 2002-303161 20021121
US 7138258 B2 20061121
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MX 2003PA08565 A 20040521 MX 2003-PA8565
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US 7026147 B2 20060411
US 2006166317 A1 20060727 US 2003-734719
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US 7202353 B2 20070410
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AU 2007202898 A1 20070712 AU 2007-202898
20070622
PRAI US 1999-118213P P 19990201
US 2000-495406 A2 20000131
EP 2000-901455 A3 20000201
US 2001-816028 A 20010321
AU 2002-237122 A3 20020222
WO 2002-CA229 W 20020222
US 2002-303118 A3 20021121
US 2002-303128 A1 20021121
US 2002-303134 A3 20021121
US 2004-821604 A3 20040408
AB This invention provides Campylobacter jejuni glycosyltransferases, including a bifunctional sialyltransferase that has both an α2,3- and an α2,8-activity. A β1,4-GaINAc transferase and a β1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). In addnl. embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases. The enzymes may be used in preparation of gangliosides, lysogangliosides, and mimics of gangliosides and lysogangliosides. Thus, C. jejuni gene cstI α2,3-sialyltransferase, gene cstII bifunctional α2,3/α2,8-sialyltransferase, gene cgtA β- 1, 4-N-acetylgalactosaminyltransferase, and gene cgtB β-1,3-galactosyltransferase enzymes were used to prepare the carbohydrate portion of gangliosides GM1a, GM2, GM3, GD1a, GD3, and GT1a.

L7 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2002:37514 CAPLUS
DN 137:16281
TI The genetic bases for the variation in the lipo-oligosaccharide of the mucosal pathogen, Campylobacter jejuni. Biosynthesis of sialylated ganglioside mimics in the core oligosaccharide
AU Gilbert, Michel; Karwaski, Marie-France; Bernatchez, Stephane; Young, N. Martin; Taboada, Eduardo; Michniewicz, Joseph; Cunningham, Anna-Maria;

Wakarchuk, Warren W.
CS Institute for Biological Sciences, National Research Council of Canada,
Ottawa, ON, K1A 0R6, Can.
SO Journal of Biological Chemistry (2002), 277(1), 327-337
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
AB The lipo-oligosaccharide (LOS) biosynthesis loci from 11 Campylobacter jejuni strains expressing a total of 8 different ganglioside mimics in their LOS outer cores were compared. Based on the organization of the genes, the 11 corresponding loci could be classified into 3 classes, with one of them being clearly an intermediate evolutionary step between the other two. Comparative genomics and expression of specific glycosyltransferases combined with in vitro activity assays allowed identification of ≥5 distinct mechanisms that allow C. jejuni to vary the structure of the LOS outer core as follows: (1) different gene complements; (2) phase variation because of homopolymeric tracts; (3) gene inactivation by the deletion or insertion of a single base (without phase variation); (4) single mutation leading to the inactivation of a glycosyltransferase; and (5) single or multiple mutations leading to "allelic" glycosyltransferases with different acceptor specificities. The differences in the LOS outer core structures expressed by the 11 C. jejuni strains examined can be explained by one or more of these 5 mechanisms.
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2001:763199 CAPLUS
DN 135:328761
TI Campylobacter jejuni α 1,4-N-acetylgalactosaminyltransferase gene
IN Endo, Tetsuo; Kakita, Shingo; Koizumi, Satoshi; Ozaki, Akio
PA Kyowa Hakko Kogyo Co., Ltd., Japan
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent

LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001077337	A1	20011018	WO 2001-JP3111	20010411
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001046895	A5	20011023	AU 2001-46895	20010411
EP 1275721	A1	20030115	EP 2001-919887	20010411
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2004072324	A1	20040415	US 2003-257292	20030127
PRAI JP 2000-109150	A	20000411		
WO 2001-JP3111	W	20010411		

AB α 1,4-N-acetylgalactosaminyltransferase (α 1,4-GalNAc transferase) of Campylobacter jejuni, its gene, and use in biosynthetic production of GalNAc-containing complex carbohydrates, are disclosed. Complex carbohydrates having oligosaccharide containing galactose or N-acetylgalactosamine (GalNAc) at the reducing end are produced. A GalNAc-containing complex carbohydrate can be economically produced in a large amount by bringing the microorganism with the expression of the above enzyme, UDP-GalNAc, a receptor complex carbohydrate in an aqueous medium. Oligosaccharide moiety can be lactose,

N-acetyllactosamine, lacto-N-neotetraose, lacto-N-tetraose, para-lacto-N-neohexaose, Lewis X, or Lewis a. Production of GalNAcα1-4Galβ1-4GlcNAcβ1-3Galβ1-4Glc and GalNAcα1-4Galβ1-4Glc in E. coli transformed with C. jejuni α1,4-GalNAc transferase, is described.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2000:553711 CAPLUS
DN 133:161277
TI Campylobacter glycosyltransferases for biosynthesis of gangliosides and
ganglioside mimics
IN Gilbert, Michel; Wakarchuk, Warren W.
PA National Research Council of Canada, Can.
SO PCT Int. Appl., 120 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000046379	A1	20000810	WO 2000-CA86	20000201
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, ZA, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6503744	B1	20030107	US 2000-495406	20000131
CA 2360205	A1	20000810	CA 2000-2360205	20000201
EP 1147200	A1	20011024	EP 2000-901455	20000201
EP 1147200	B1	20060607		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI, RO, CY				

JP 2002535992 T 20021029 JP 2000-597438
20000201
AU 772569 B2 20040429 AU 2000-22743
20000201
EP 1652927 A2 20060503 EP 2005-25316
20000201
EP 1652927 A3 20060719
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL
AT 329036 T 20060615 AT 2000-901455
20000201
PT 1147200 T 20061031 PT 2000-901455
20000201
ES 2269098 T3 20070401 ES 2000-901455
20000201
MX 2001PA07853 A 20030925 MX 2001-PA7853
20010801
AU 2004203474 A1 20040826 AU 2004-203474
20040729
AU 2004203474 B2 20070920
AU 2007202898 A1 20070712 AU 2007-202898
20070622
PRAI US 1999-118213P P 19990201
US 2000-495406 A 20000131
EP 2000-901455 A3 20000201
WO 2000-CA86 W 20000201
AU 2002-237122 A3 20020222
AB This invention provides prokaryotic glycosyltransferases,
including a
bifunctional sialyltransferase that has both an α2,3- and an
α2,8- activity. A β1,4-GalNAc transferase and a
β1,3-galactosyltransferase are also provided by the invention,
as are
other glycosyltransferases and enzymes involved in synthesis of
lipooligosaccharide (LOS). The glycosyltransferases can be
obtained from,
for example, Campylobacter species, including C. jejuni. In
addnl.
embodiments, the invention provides nucleic acids that encode the
glycosyltransferases, as well as expression vectors and host
cells for
expressing the glycosyltransferases.
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 10 MEDLINE on STN DUPLICATE 3
AN 2001053031 MEDLINE
DN PubMed ID: 11083778
TI Sialylation of lipooligosaccharide cores affects immunogenicity
and serum

resistance of Campylobacter jejuni.
AU Guerry P; Ewing C P; Hickey T E; Prendergast M M; Moran A P
CS Enteric Diseases Department, Naval Medical Research Center, Silver Spring,
Maryland 20910, USA.. guerryp@nmrc.navy.mil
NC 1 RO1 A143559
SO Infection and immunity, (2000 Dec) Vol. 68, No. 12, pp. 6656-62.

Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 200012
ED Entered STN: 22 Mar 2001
Last Updated on STN: 22 Mar 2001
Entered Medline: 13 Dec 2000
AB Three genes involved in biosynthesis of the lipooligosaccharide (LOS) core
of Campylobacter jejuni MSC57360, the type strain of the HS:1
serotype, whose structure mimics GM(2) ganglioside, have been cloned and
characterized. Mutation of genes encoding proteins with homology to a
sialyl transferase (cstII) and a putative N-acetylmannosamine synthetase
(neuC1), part of the biosynthetic pathway of N-acetylneuraminic acid
(NeuNAc), have identical phenotypes. The LOS cores of these mutants
display identical changes in electrophoretic mobility, loss of reactivity
with cholera toxin (CT), and enhanced immunoreactivity with a hyperimmune
polyclonal antiserum generated against whole cells of C. jejuni MSC57360.
Loss of sialic acid in the core of the neuC1 mutant was confirmed by fast
atom bombardment mass spectrometry. Mutation of a gene encoding a
putative beta-1,4-N-acetylgalactosaminyltransfera
se (Cgt) resulted in LOS cores intermediate in electrophoretic
mobility between that of wild type and the mutants lacking NeuNAc, loss of
reactivity with CT, and a reduced immunoreactivity with hyperimmune
antiserum. Chemical analyses confirmed the loss of N-acetylgalactosamine

(GalNAc) and the presence of NeuNAc in the cgt mutant. These data suggest
that the Cgt enzyme is capable of transferring GalNAc to an acceptor with
or without NeuNAc and that the Cst enzyme is capable of transferring
NeuNAc to an acceptor with or without GalNAc. A mutant with a
nonsialylated LOS core is more sensitive to the bactericidal effects of
human sera than the wild type or the mutant lacking GalNAc.

L7 ANSWER 10 OF 10 MEDLINE on STN DUPLICATE 4
AN 2000127862 MEDLINE
DN PubMed ID: 10660542
TI Biosynthesis of ganglioside mimics in Campylobacter jejuni OH4384.
Identification of the glycosyltransferase genes, enzymatic synthesis of
model compounds, and characterization of nanomole amounts by 600-mhz (1)h
and (13)c NMR analysis.
AU Gilbert M; Brisson J R; Karwaski M F; Michniewicz J; Cunningham A M; Wu Y;
Young N M; Wakarchuk W W
CS Institute for Biological Sciences, National Research Council of Canada,
Ottawa, Ontario K1A 0R6, Canada.
SO The Journal of biological chemistry, (2000 Feb 11) Vol. 275, No. 6, pp.
3896-906.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AF130466; GENBANK-AF130984; GENBANK-AF167345
EM 200003
ED Entered STN: 27 Mar 2000
Last Updated on STN: 27 Mar 2000
Entered Medline: 16 Mar 2000
AB We have applied two strategies for the cloning of four genes responsible
for the biosynthesis of the GT1a ganglioside mimic in the
lipooligosaccharide (LOS) of a bacterial pathogen, Campylobacter
jejuni OH4384, which has been associated with Guillain-Barre syndrome. We
first cloned a gene encoding an alpha-2, 3-sialyltransferase (cst-I) using
an activity screening strategy. We then used nucleotide sequence
information from the recently completed sequence from C. jejuni NCTC 11168

to amplify a region involved in LOS biosynthesis from C. jejuni OH4384.
The LOS biosynthesis locus from C. jejuni OH4384 is 11.47 kilobase pairs
and encodes 13 partial or complete open reading frames, while the
corresponding locus in C. jejuni NCTC 11168 spans 13.49 kilobase pairs and
contains 15 open reading frames, indicating a different organization
between these two strains. Potential glycosyltransferase genes were
cloned individually, expressed in Escherichia coli, and assayed using
synthetic fluorescent oligosaccharides as acceptors. We identified genes
encoding a beta-1, 4-N-acetylgalactosaminyl-
transferase (cgtA), a beta-1, 3-galactosyltransferase (cgtB), and
a bifunctional sialyltransferase (cst-II), which transfers sialic acid to
O-3 of galactose and to O-8 of a sialic acid that is linked alpha-2,3- to
a galactose. The linkage specificity of each identified
glycosyltransferase was confirmed by NMR analysis at 600 MHz on nanomole
amounts of model compounds synthesized in vitro. Using a gradient inverse
broadband nano-NMR probe, sequence information could be obtained by
detection of (3)J(C,H) correlations across the glycosidic bond. The role
of cgtA and cst-II in the synthesis of the GT1a mimic in C. jejuni OH4384
were confirmed by comparing their sequence and activity with corresponding
homologues in two related C. jejuni strains that express shorter
ganglioside mimics in their LOS.

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L8 28 L1 AND L2

=> duplicate
ENTER REMOVE, IDENTIFY, ONLY, OR (?):remove
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DUPLICATE PREFERENCE IS 'MEDLINE, EMBASE, BIOSIS, CAPLUS'
KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n
PROCESSING COMPLETED FOR L8
L9 17 DUPLICATE REMOVE L8 (11 DUPLICATES REMOVED)

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L9 ANSWER 1 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:455632 BIOSIS
DN PREV200700454271
TI beta 1,4-N-acetylgalactosaminyl transferases from C. jejuni.
AU Anonymous; Gilbert, Michel [Inventor]; Wakarchuk, Warren W. [Inventor]
CS Hull, Canada
ASSIGNEE: National Research Council of Canada
PI US 07238509 20070703
SO Official Gazette of the United States Patent and Trademark Office Patents,
(JUL 3 2007)
CODEN: OGUPE7. ISSN: 0098-1133.
DT Patent
LA English
ED Entered STN: 22 Aug 2007
Last Updated on STN: 22 Aug 2007
AB This invention provides prokaryotic glycosyltransferases, including a
bifunctional sialyltransferase that has both an alpha 2,3- and an alpha
2,8-activity. A beta 1,4-GalNAc transferase and a beta
1,3-galactosyltransferase are also provided by the invention, as are other
glycosyltransferases and enzymes involved in synthesis of
lipooligosaccharide (LOS). The glycosyltransferases can be obtained from,
for example, Campylobacter species, including C. jejuni. In
additional embodiments, the invention provides nucleic acids that encode
the glycosyltransferases, as well as expression vectors and host cells for
expressing the glycosyltransferases.

L9 ANSWER 2 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:231051 BIOSIS
DN PREV200700230171
TI Nucleic acids encoding beta 1,4-N-acetylgalactosaminyltransferases from C.
jejuni.
AU Anonymous; Gilbert, Michel [Inventor]; Wakarchuk, Warren W. [Inventor]
CS Hull, Canada
ASSIGNEE: National Research Council of Canada
PI US 07189836 20070313
SO Official Gazette of the United States Patent and Trademark Office Patents,
(MAR 13 2007)
CODEN: OGUPE7. ISSN: 0098-1133.

DT Patent
LA English
ED Entered STN: 4 Apr 2007
Last Updated on STN: 4 Apr 2007
AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an alpha 2,3- and an alpha 2,8-activity. A beta 1,4-GalNAc transferase and a beta 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L9 ANSWER 3 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:185941 BIOSIS
DN PREV200700192247
TI beta 1,4-N-acetylgalactosaminyltransferases from C. jejuni.
AU Anonymous; Gilbert, Michel [Inventor]; Wakarchuk, Warren W. [Inventor]
CS Hull, Canada
ASSIGNEE: National Research Council of Canada
PI US 07169593 20070130
SO Official Gazette of the United States Patent and Trademark Office Patents,
(JAN 30 2007)
CODEN: OGUPE7. ISSN: 0098-1133.
DT Patent
LA English
ED Entered STN: 14 Mar 2007
Last Updated on STN: 14 Mar 2007
AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an alpha 2,3- and an alpha 2,8-activity. A beta 1,4-GalNAc transferase and a beta 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In additional embodiments, the invention provides nucleic acids that encode

the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L9 ANSWER 4 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2007:117784 BIOSIS
DN PREV200700116026
TI Nucleic acids encoding beta 1,4-N-acetylgalactosaminyltransferases from C. jejuni.
AU Anonymous; Gilbert, Michel [Inventor]; Wakarchuk, Warren W. [Inventor]
CS Hull, Canada
ASSIGNEE: National Research Council of Canada
PI US 07166717 20070123
SO Official Gazette of the United States Patent and Trademark Office Patents,
(JAN 23 2007)
CODEN: OGUPE7. ISSN: 0098-1133.
DT Patent
LA English
ED Entered STN: 14 Feb 2007
Last Updated on STN: 14 Feb 2007
AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an alpha 2,3- and an alpha 2,8-activity. A beta 1,4-GalNAc transferase and a beta 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L9 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2007:289252 CAPLUS
DN 146:496524
TI Structural characterization of Campylobacter jejuni lipooligosaccharide outer cores associated with Guillain-Barre and Miller Fisher syndromes
AU Godschalk, Peggy C. R.; Kuijf, Mark L.; Li, Jianjun; St. Michael, Frank;
Ang, C. Wim; Jacobs, Bart C.; Karwaski, Marie-France; Brochu, Denis;

Moterassed, Ali; Endtz, Hubert P.; van Belkum, Alex; Gilbert, Michel
CS Department of Medical Microbiology and Infectious Diseases, University
Medical Center, Rotterdam, 3015 GD, Neth.
SO Infection and Immunity (2007), 75(3), 1245-1254
CODEN: INFIBR; ISSN: 0019-9567
PB American Society for Microbiology
DT Journal
LA English
AB Mol. mimicry between lipooligosaccharides (LOS) of Campylobacter jejuni and gangliosides in peripheral nerves plays a crucial role in the pathogenesis of C. jejuni-related Guillain-Barre syndrome (GBS). We have analyzed the LOS outer core structures of 26 C. jejuni strains associated with GBS and its variant, Miller Fisher syndrome (MFS), by capillary electrophoresis coupled with electrospray ionization mass spectrometry. Sixteen out of 22 (73%) GBS-associated and all 4 (100%) MFS-associated strains expressed LOS with ganglioside mimics. GM1a was the most prevalent ganglioside mimic in GBS-associated strains (10/22, 45%), and in eight of these strains, GM1a was found in combination with GD1a mimics. All seven strains isolated from patients with ophthalmoplegia (GBS or MFS) expressed disialylated (GD3 or GD1c) mimics. Three out of 22 GBS-associated strains (14%) did not express sialylated ganglioside mimics because their LOS locus lacked the genes necessary for sialylation. Three other strains (14%) did not express ganglioside mimics because of frameshift mutations in either the cstII sialyltransferase gene or the cgtB galactosyltransferase gene. It is not possible to determine if these mutations were already present during C. jejuni infection. This is the first report in which mass spectrometry combined with DNA sequence data were used to infer the LOS outer core structures of a large number of neuropathy-associated C. jejuni strains. We conclude that mol. mimicry between gangliosides and C. jejuni LOS is the presumable pathogenic mechanism in most cases of C.

jejuni-related GBS. However, our findings suggest that in some cases,
other mechanisms may play a role. Further examination of the disease etiol. in
these patients is mandatory.
RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on STN
AN 2006:235396 BIOSIS
DN PREV200600241377
TI Nucleic acids encoding beta-1,4-GalNAc transferase.
AU Gilbert, Michel [Inventor]; Wakarchuk, Warren W. [Inventor]
CS ASSIGNEE: National Research Council of Canada
PI US 06911337 20050628
SO Official Gazette of the United States Patent and Trademark Office Patents,
(JUN 28 2005)
CODEN: OGUPE7. ISSN: 0098-1133.
DT Patent
LA English
ED Entered STN: 19 Apr 2006
Last Updated on STN: 19 Apr 2006
AB This invention provides prokaryotic glycosyltransferases, including a
bifunctional sialyltransferase that has both an alpha 2,3- and an alpha
2,8-activity. A beta 1,4-GalNAc transferase and a beta
1,3-galactosyltransferase are also provided by the invention, as are other
glycosyltransferases and enzymes involved in synthesis of
lipooligosaccharide (LOS). The glycosyltransferases can be obtained from,
for example, Campylobacter species, including C. jejuni. In
additional embodiments, the invention provides nucleic acids that encode
the glycosyltransferases, as well as expression vectors and host cells for
expressing the glycosyltransferases.

L9 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2005:497944 CAPLUS
DN 144:101691
TI Genomic diversity in Campylobacter jejuni: identification of C. jejuni 81-176-specific genes
AU Poly, Frederic; Threadgill, Deborah; Stintzi, Alain
CS Department of Veterinary Pathobiology, College of Veterinary Medicine,
Oklahoma State University, Stillwater, OK, 74078, USA
SO Journal of Clinical Microbiology (2005), 43(5), 2330-2338

CODEN: JCMIDW; ISSN: 0095-1137
PB American Society for Microbiology
DT Journal
LA English
AB Since the publication of the complete genomic sequence of Campylobacter jejuni NCTC 11168 in Feb. 2000, evidence has been compiling that suggests C. jejuni strains exhibit high genomic diversity.
In order to investigate this diversity, the unique genomic DNA sequences from a nonsequenced Campylobacter strain, C. jejuni 81-176, were identified by comparison with C. jejuni NCTC 11168 by using a shotgun DNA microarray approach. Up to 63 kb of new chromosomal DNA sequences unique to this pathogen were obtained. Eighty-six open reading frames were identified by the presence of uninterrupted coding regions encoding a min. of 40 amino acids. In addition, this study shows that the whole-plasmid shotgun microarray approach is effective and provides a comprehensive coverage of DNA regions that differ between two closely related genomes.
The two plasmids harbored by this Campylobacter strain, pTet and pVir, were also sequenced, with coverages of 2.5- and 2.9-fold, resp., representing 72 and 92% of their complete nucleotide sequences. The unique chromosomal genes encode proteins involved in capsule and lipooligosaccharide biosynthesis, restriction and modification systems, and respiratory metabolism Several of these unique genes are likely associated with C. jejuni 81-176 fitness and virulence. Interestingly, the comparison of C. jejuni 81-176 unique genes with those of C. jejuni ATCC 43431 revealed a single gene which encodes a probable TraG-like protein.
The product of this gene might be associated with the mechanism of C. jejuni invasion into epithelial cells. In conclusion, this study extends the repertoire of C. jejuni genes and thus will permit the construction of a composite and more comprehensive microarray of C. jejuni.
RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 8 OF 17 MEDLINE on STN DUPLICATE 1

AN 2005392412 MEDLINE
DN PubMed ID: 16005859
TI Chemoenzymatic synthesis of 2-azidoethyl-ganglio-oligosaccharides GD3, GT3, GM2, GD2, GT2, GM1, and GD1a.
AU Blixt Ola; Vasiliu Daniela; Allin Kirk; Jacobsen Nathan; Warnock Dawn; Razi Nahid; Paulson James C; Bernatchez Stephane; Gilbert Michel; Wakarchuk Warren
CS Carbohydrate Synthesis and Protein Expression Core D, Consortium for Functional Glycomics, The Scripps Research Institute, Department of Molecular Biology, CB-248A, 92037 La Jolla, USA.. olablixt@scripps.edu
SO Carbohydrate research, (2005 Sep 5) Vol. 340, No. 12, pp. 1963-72.
Journal code: 0043535. ISSN: 0008-6215.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
EM 200510
ED Entered STN: 31 Jul 2005
Last Updated on STN: 19 Oct 2005
Entered Medline: 18 Oct 2005
AB We have synthesized several ganglio-oligosaccharide structures using glycosyltransferases from Campylobacter jejuni. The enzymes, alpha-(2-->3/8)-sialyltransferase (Cst-II), beta-(1-->4)-N-acetylgalactosaminyltransferase (CgtA), and beta-(1-->3)-galactosyltransferase (CgtB), were produced in large-scale fermentation from Escherichia coli and further characterized based on their acceptor specificities. 2-Azidoethyl-glycosides corresponding to the oligosaccharides of GD3 (alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)-beta-D-Galp-(1-->4)-beta-D-Glcp-), GT3 (alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)-beta-D-Galp-(1-->4)-beta-D-Glcp-), GM2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), GD2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), GT2 (beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->8)-alpha-D-Neup5Ac-(2-->8)-

alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-(1-->4)-beta-D-Glcp-), and GM1

(beta-D-Galp-(1-->3)-beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-
D-Galp-(1-->4)-beta-D-Glcp-) were synthesized in high yields (gram-scale).
In addition, a mammalian alpha-(2-->3)-sialyltransferase (ST3Gal I) was
used to sialylate GM1 and generate GD1a (alpha-D-Neup5Ac-(2-->3)-beta-D-

Galp-(1-->3)-beta-D-GalpNAc-(1-->4)-[alpha-D-Neup5Ac-(2-->3)]-beta-D-Galp-
(1-->4)-beta-D-Glcp-) oligosaccharide. We also cloned and expressed a rat
UDP-N-acetylglucosamine-4'epimerase (GalNAcE) in E. coli AD202 cells for
cost saving in situ conversion of less expensive UDP-GlcNAc to UDP-GalNAc.

L9 ANSWER 9 OF 17 MEDLINE on STN DUPLICATE 2
AN 2005087616 MEDLINE
DN PubMed ID: 15716397
TI Overexpression of GD1a ganglioside sensitizes motor nerve terminals to
anti-GD1a antibody-mediated injury in a model of acute motor axonal
neuropathy.
AU Goodfellow John A; Bowes Tyrone; Sheikh Kazim; Odaka Masaaki; Halstead
Susan K; Humphreys Peter D; Wagner Eric R; Yuki Nobuhiro; Furukawa Koichi;
Furukawa Keiko; Plomp Jaap J; Willison Hugh J
CS Division of Clinical Neurosciences, Institute of Neurological Sciences,
Southern General Hospital, Glasgow G51 4TF, United Kingdom.
NC NS42888 (NINDS)
SO The Journal of neuroscience : the official journal of the Society for
Neuroscience, (2005 Feb 16) Vol. 25, No. 7, pp. 1620-8.
Journal code: 8102140. E-ISSN: 1529-2401.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, N.I.H., EXTRAMURAL)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 200510
ED Entered STN: 19 Feb 2005

Last Updated on STN: 14 Oct 2005
Entered Medline: 13 Oct 2005

AB Anti-GD1a ganglioside antibodies (Abs) are the serological hallmark of the acute motor axonal form of the post-infectious paralysis, Guillain-Barre syndrome. Development of a disease model in mice has been impeded by the weak immunogenicity of gangliosides and the apparent resistance of GD1a-containing neural membranes to anti-GD1a antibody-mediated injury. Here we used mice with altered ganglioside biosynthesis to generate such a model at motor nerve terminals. First, we bypassed immunological tolerance by immunizing GD1a-deficient, beta-1,4-N-acetylgalactosaminyl transferase knock-out mice with GD1a ganglioside-mimicking antigens from Campylobacter jejuni and generated high-titer anti-GD1a antisera and complement fixing monoclonal Abs (mAbs). Next, we exposed ex vivo nerve-muscle preparations from GD1a-overexpressing, GD3 synthase knock-out mice to the anti-GD1a mAbs in the presence of a source of complement and investigated morphological and electrophysiological damage. Dense antibody and complement deposits were observed only over presynaptic motor axons, accompanied by severe ultrastructural damage and electrophysiological blockade of motor nerve terminal function. Perisynaptic Schwann cells and postsynaptic membranes were unaffected. In contrast, normal mice were not only unresponsive to immunization with GD1a but also resistant to neural injury during anti-GD1a Ab exposure, demonstrating the central role of membrane antigen density in modulating both immune tolerance to GD1a and axonal susceptibility to anti-GD1a Abmediated injury. Identical paralyzing effects were observed when testing mouse and human anti-GD1a-positive sera. These data indicate that anti-GD1a Abs arise via molecular mimicry and are likely to be clinically relevant in injuring peripheral nerve axonal membranes containing sufficiently high levels of GD1a.

L9 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN

AN 2002:276514 CAPLUS
DN 136:320378
TI Campylobacter glycosyltransferase genes and enzymes for biosynthesis of gangliosides and ganglioside mimics
IN Gilbert, Michel; Wakarchuk, Warren W.
PA National Research Council of Canada, Can.
SO U.S. Pat. Appl. Publ., 84 pp., Cont.-in-part of U.S. Ser. No. 495,406.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002042369	A1	20020411	US 2001-816028	20010321
US 6699705	B2	20040302		
US 6503744	B1	20030107	US 2000-495406	20000131
EP 1652927	A2	20060503	EP 2005-25316	20000201
EP 1652927	A3	20060719		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
AT 329036	T	20060615	AT 2000-901455	20000201
PT 1147200	T	20061031	PT 2000-901455	20000201
ES 2269098	T3	20070401	ES 2000-901455	20000201
CA 2441570	A1	20020926	CA 2002-2441570	20020222
WO 2002074942	A2	20020926	WO 2002-CA229	20020222
WO 2002074942	A3	20030313		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,				

KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB,
GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002237122 A1 20021003 AU 2002-237122 20020222

AU 2002237122 B2 20070322

EP 1385941 A2 20040204 EP 2002-703414 20020222

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

JP 2004524033 T 20040812 JP 2002-574334 20020222

US 2003148459 A1 20030807 US 2002-303161 20021121

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US 2003157655 A1 20030821 US 2002-303118 20021121

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US 2004203112 A1 20041014 US 2004-845408 20040512

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US 2004203113 A1 20041014 US 2004-845412
20040512
US 7166717 B2 20070123
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20040514
US 7202353 B2 20070410
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20040517
US 7208304 B2 20070424
US 2004259203 A1 20041223 US 2004-850125
20040519
US 7220848 B2 20070522
US 2004259140 A1 20041223 US 2004-850807
20040521
US 7217549 B2 20070515
US 2005048630 A1 20050303 US 2004-962334
20041008
US 7189836 B2 20070313
US 2005084891 A1 20050421 US 2004-962235
20041008
US 7238509 B2 20070703
US 2005227248 A1 20051013 US 2004-961882
20041008
US 7078207 B2 20060718
US 2007048854 A1 20070301 US 2006-548514
20061011
AU 2007202898 A1 20070712 AU 2007-202898
20070622
PRAI US 1999-118213P P 19990201
US 2000-495406 A2 20000131
EP 2000-901455 A3 20000201
US 2001-816028 A 20010321
AU 2002-237122 A3 20020222
WO 2002-CA229 W 20020222
US 2002-303118 A3 20021121
US 2002-303128 A1 20021121
US 2002-303134 A3 20021121
US 2004-821604 A3 20040408

AB This invention provides Campylobacter jejuni glycosyltransferases, including a bifunctional sialyltransferase that has both an α2,3- and an α2,8-activity. A β1,4-GaINAc transferase and a β1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). In addnl. embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the

glycosyltransferases. The enzymes may be used in preparation of gangliosides,
lysogangliosides, and mimics of gangliosides and lysogangliosides. Thus,
C. jejuni gene cstI α2,3-sialyltransferase, gene cstII bifunctional
α2,3/α2,8-sialyltransferase, gene cgtA β- 1,
4-N-acetylgalactosaminyltransferase, and gene cgtB
β-1,3-galactosyltransferase enzymes were used to prepare the
carbohydrate portion of gangliosides GM1a, GM2, GM3, GD1a, GD3, and GT1a.

L9 ANSWER 11 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on
STN
AN 2003:30396 BIOSIS
DN PREV200300030396
TI Synthesis of oligosaccharides and glycolipids using bacterial
glycosyltransferases.
AU Johnson, Karl F. [Reprint Author]; Bezila, Dan [Reprint Author]; Gbewonyo,
Hugh [Reprint Author]; Ngo, Winnie [Reprint Author]; Garber, Colby
[Reprint Author]; Taylor, Diane E.
CS Neose Technologies, Inc., Horsham, PA, USA
SO Glycobiology, (October 2002) Vol. 12, No. 10, pp. 706. print.
Meeting Info.: 7th Annual Conference of the Society for Glycobiology.
Boston, MA, USA. November 09-12, 2002. Society for Glycobiology.
ISSN: 0959-6658.
DT Conference; (Meeting)
Conference; (Meeting Poster)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 8 Jan 2003
Last Updated on STN: 8 Jan 2003

L9 ANSWER 12 OF 17 BIOSIS COPYRIGHT (c) 2008 The Thomson Corporation on
STN
AN 2003:30393 BIOSIS
DN PREV200300030393
TI Evolution of lipopolysaccharide glycosyltransferase specificity examined
by the study of homologous enzymes.
AU Wakarchuk, Warren W. [Reprint Author]; Bernatchez, Stephane [Reprint
Author]; Gilbert, Michel [Reprint Author]; Karwaski, Marie-France [Reprint
Author]; Masson, Amara [Reprint Author]; Logan, Susan [Reprint Author];

Dunn, Jessica [Reprint Author]
CS Institute for Biological Sciences, National Research Council of Canada,
100 Sussex Drive, Ottawa, ON, K1A 0R6, Canada
SO Glycobiology, (October 2002) Vol. 12, No. 10, pp. 705-706. print.
Meeting Info.: 7th Annual Conference of the Society for Glycobiology.
Boston, MA, USA. November 09-12, 2002. Society for Glycobiology.
ISSN: 0959-6658.
DT Conference; (Meeting)
Conference; (Meeting Poster)
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 8 Jan 2003
Last Updated on STN: 11 Feb 2003

L9 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2002:37514 CAPLUS
DN 137:16281
TI The genetic bases for the variation in the lipo-oligosaccharide of the
mucosal pathogen, Campylobacter jejuni. Biosynthesis of sialylated ganglioside mimics in the core oligosaccharide
AU Gilbert, Michel; Karwaski, Marie-France; Bernatchez, Stephane; Young, N.
Martin; Taboada, Eduardo; Michniewicz, Joseph; Cunningham, Anna-Maria;
Wakarchuk, Warren W.
CS Institute for Biological Sciences, National Research Council of Canada,
Ottawa, ON, K1A 0R6, Can.
SO Journal of Biological Chemistry (2002), 277(1), 327-337
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
AB The lipo-oligosaccharide (LOS) biosynthesis loci from 11 Campylobacter jejuni strains expressing a total of 8 different ganglioside mimics in their LOS outer cores were compared. Based on the
organization of the genes, the 11 corresponding loci could be classified
into 3 classes, with one of them being clearly an intermediate evolutionary step between the other two. Comparative genomics and
expression of specific glycosyltransferases combined with in vitro
activity assays allowed identification of ≥5 distinct mechanisms that allow C. jejuni to vary the structure of the LOS outer core as

follows: (1) different gene complements; (2) phase variation because of homopolymeric tracts; (3) gene inactivation by the deletion or insertion of a single base (without phase variation); (4) single mutation leading to the inactivation of a glycosyltransferase; and (5) single or multiple mutations leading to "allelic" glycosyltransferases with different acceptor specificities. The differences in the LOS outer core structures expressed by the 11 C. jejuni strains examined can be explained by one or more of these 5 mechanisms.
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2001:763199 CAPLUS
DN 135:328761
TI Campylobacter jejuni α 1,4-N-acetylgalactosaminyltransferase gene
IN Endo, Tetsuo; Kakita, Shingo; Koizumi, Satoshi; Ozaki, Akio
PA Kyowa Hakko Kogyo Co., Ltd., Japan
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001077337	A1	20011018	WO 2001-JP3111	20010411

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
AU 2001046895 A5 20011023 AU 2001-46895 20010411
EP 1275721 A1 20030115 EP 2001-919887 20010411
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
US 2004072324 A1 20040415 US 2003-257292 20030127
PRAI JP 2000-109150 A 20000411
WO 2001-JP3111 W 20010411
AB α 1,4-N-acetylgalactosaminyltransferase (α 1,4-GalNAc transferase) of Campylobacter jejuni, its gene, and use in biosynthetic production of GalNAc-containing complex carbohydrates, are disclosed. Complex carbohydrates having oligosaccharide containing galactose or N-acetylgalactosamine (GalNAc) at the reducing end are produced. A GalNAc-containing complex carbohydrate can be economically produced in a large amount by bringing the microorganism with the expression of the above enzyme, UDP-GalNAc, a receptor complex carbohydrate in an aqueous medium. Oligosaccharide moiety can be lactose, N-acetyllactosamine, lacto-N-neotetraose, lacto-N-tetraose, para-lacto-N-neohexaose, Lewis X, or Lewis a. Production of GalNAcα1-4Galβ1-4GlcNAcβ1-3Galβ1-4Glc and GalNAcα1-4Galβ1-4Glc in E. coli transformed with C. jejuni α1,4-GalNAc transferase, is described.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2008 ACS on STN
AN 2000:553711 CAPLUS
DN 133:161277
TI Campylobacter glycosyltransferases for biosynthesis of gangliosides and ganglioside mimics
IN Gilbert, Michel; Wakarchuk, Warren W.
PA National Research Council of Canada, Can.
SO PCT Int. Appl., 120 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 3

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2000046379 A1 20000810 WO 2000-CA86
20000201
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,
CR, CU,
CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
LV, MA,
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,
SG, ZA,
TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,
CY, DE,
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF,
BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
US 6503744 B1 20030107 US 2000-495406
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20000201
EP 1147200 A1 20011024 EP 2000-901455
20000201
EP 1147200 B1 20060607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT,
IE, LT, LV, FI, RO, CY
JP 2002535992 T 20021029 JP 2000-597438
20000201
AU 772569 B2 20040429 AU 2000-22743
20000201
EP 1652927 A2 20060503 EP 2005-25316
20000201
EP 1652927 A3 20060719
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL
AT 329036 T 20060615 AT 2000-901455
20000201
PT 1147200 T 20061031 PT 2000-901455
20000201
ES 2269098 T3 20070401 ES 2000-901455
20000201
MX 2001PA07853 A 20030925 MX 2001-PA7853
20010801
AU 2004203474 A1 20040826 AU 2004-203474
20040729
AU 2004203474 B2 20070920
AU 2007202898 A1 20070712 AU 2007-202898
20070622
PRAI US 1999-118213P P 19990201
US 2000-495406 A 20000131

EP 2000-901455 A3 20000201
WO 2000-CA86 W 20000201
AU 2002-237122 A3 20020222

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an α2,3- and an α2,8- activity. A β1,4-GalNAc transferase and a β1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In addnl. embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 16 OF 17 MEDLINE on STN DUPLICATE 3
AN 2001053031 MEDLINE
DN PubMed ID: 11083778
TI Sialylation of lipooligosaccharide cores affects immunogenicity and serum resistance of Campylobacter jejuni.
AU Guerry P; Ewing C P; Hickey T E; Prendergast M M; Moran A P
CS Enteric Diseases Department, Naval Medical Research Center, Silver Spring, Maryland 20910, USA.. guerryp@nmrc.navy.mil
NC 1 RO1 A143559
SO Infection and immunity, (2000 Dec) Vol. 68, No. 12, pp. 6656-62.

Journal code: 0246127. ISSN: 0019-9567.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, NON-P.H.S.)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 200012
ED Entered STN: 22 Mar 2001
Last Updated on STN: 22 Mar 2001
Entered Medline: 13 Dec 2000

AB Three genes involved in biosynthesis of the lipooligosaccharide (LOS) core of Campylobacter jejuni MSC57360, the type strain of the HS:1 serotype, whose structure mimics GM(2) ganglioside, have been cloned and

characterized. Mutation of genes encoding proteins with homology to a sialyl transferase (cstII) and a putative N-acetylmannosamine synthetase (neuC1), part of the biosynthetic pathway of N-acetylneuraminic acid (NeuNAc), have identical phenotypes. The LOS cores of these mutants display identical changes in electrophoretic mobility, loss of reactivity with cholera toxin (CT), and enhanced immunoreactivity with a hyperimmune polyclonal antiserum generated against whole cells of C. jejuni MSC57360. Loss of sialic acid in the core of the neuC1 mutant was confirmed by fast atom bombardment mass spectrometry. Mutation of a gene encoding a putative beta-1,4-N-acetylgalactosaminyltransfera se (Cgt) resulted in LOS cores intermediate in electrophoretic mobility between that of wild type and the mutants lacking NeuNAc, loss of reactivity with CT, and a reduced immunoreactivity with hyperimmune antiserum. Chemical analyses confirmed the loss of N-acetylgalactosamine (GalNAc) and the presence of NeuNAc in the cgt mutant. These data suggest that the Cgt enzyme is capable of transferring GalNAc to an acceptor with or without NeuNAc and that the Cst enzyme is capable of transferring NeuNAc to an acceptor with or without GalNAc. A mutant with a nonsialylated LOS core is more sensitive to the bactericidal effects of human sera than the wild type or the mutant lacking GalNAc.

L9 ANSWER 17 OF 17 MEDLINE on STN DUPLICATE 4
AN 2000127862 MEDLINE
DN PubMed ID: 10660542
TI Biosynthesis of ganglioside mimics in Campylobacter jejuni OH4384. Identification of the glycosyltransferase genes, enzymatic synthesis of model compounds, and characterization of nanomole amounts by 600-mhz (1)h and (13)c NMR analysis.
AU Gilbert M; Brisson J R; Karwaski M F; Michniewicz J; Cunningham A M; Wu Y; Young N M; Wakarchuk W W
CS Institute for Biological Sciences, National Research Council of Canada,

Ottawa, Ontario K1A 0R6, Canada.
SO The Journal of biological chemistry, (2000 Feb 11) Vol. 275, No. 6, pp.
3896-906.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AF130466; GENBANK-AF130984; GENBANK-AF167345
EM 200003
ED Entered STN: 27 Mar 2000
Last Updated on STN: 27 Mar 2000
Entered Medline: 16 Mar 2000
AB We have applied two strategies for the cloning of four genes responsible for the biosynthesis of the GT1a ganglioside mimic in the lipooligosaccharide (LOS) of a bacterial pathogen, Campylobacter jejuni OH4384, which has been associated with Guillain-Barre syndrome. We first cloned a gene encoding an alpha-2, 3-sialyltransferase (cst-I) using an activity screening strategy. We then used nucleotide sequence information from the recently completed sequence from C. jejuni NCTC 11168 to amplify a region involved in LOS biosynthesis from C. jejuni OH4384. The LOS biosynthesis locus from C. jejuni OH4384 is 11.47 kilobase pairs and encodes 13 partial or complete open reading frames, while the corresponding locus in C. jejuni NCTC 11168 spans 13.49 kilobase pairs and contains 15 open reading frames, indicating a different organization between these two strains. Potential glycosyltransferase genes were cloned individually, expressed in Escherichia coli, and assayed using synthetic fluorescent oligosaccharides as acceptors. We identified genes encoding a beta-1, 4-N-acetylgalactosaminyl-transferase (cgtA), a beta-1, 3-galactosyltransferase (cgtB), and a bifunctional sialyltransferase (cst-II), which transfers sialic acid to O-3 of galactose and to O-8 of a sialic acid that is linked alpha-2,3- to a galactose. The linkage specificity of each identified glycosyltransferase was confirmed by NMR analysis at 600 MHz on nanomole amounts of model compounds synthesized in vitro. Using a gradient inverse

broadband nano-NMR probe, sequence information could be obtained by
detection of (3)J(C,H) correlations across the glycosidic bond. The role
of cgtA and cst-II in the synthesis of the GT1a mimic in C. jejuni OH4384
were confirmed by comparing their sequence and activity with corresponding
homologues in two related C. jejuni strains that express shorter
ganglioside mimics in their LOS.

SEQ ID NO: 1

Aaagaatacgaatttgctaaagagg (41; would anneal to the non-coding strand)

ttttaaatcttagtggtattgatgaaacacatatagaattagcgccaaaatttaatcttgaagagctaatggctttacaaaaatgatggatcttat
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taaattttgttaaaataataaaaacaattctatcaaagtttaggaaatttatgaaaatttttatacaccttccaa
cctggttaggcgatacggtaatggc (40, reverse complement; would anneal to the coding strand)

SEQ ID NO: 40

gccattaccgtatcgcctaaccagg

rev complement: cctggttaggcgatacggtaatggc

SEQ ID NO: 41

aaagaatacgaatttgctaaagagg

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